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CRISES NOW AND THEN: WHAT LESSONS FROM THE LAST ERA OF FINANCIAL GLOBALIZATION?

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ABSTRACT

We consider the operation of international capital markets in two periods of globalization, before 1914 and after 1971, with a focus on the crisis problem. We explore the idea that the incidence of crises in these two periods reflects how capital flows were embedded in the larger economic system. Other authors have made similar connections, suggesting that the international monetary framework was responsible for the relatively short-lived and mild nature of pre-World War I financial crises. However, we show that currency crises in fact were of longer duration before 1914. Only for banking and twin crises is there evidence that recovery was faster then than now. This leads us to a somewhat different view of the role of the monetary regime in the propagation of financial crises. A key difference between then and now, we suggest, is that prior to 1914 banking crises were less prone to undermine confidence in the currency, and to thereby compound financial problems, in the countries that were at the core of the international monetary system.

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Crises Now and Then:
What Lessons from the Last Era of Financial Globalization?[1]

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1. Introduction

For more than a third of a century, Charles Goodhart has sought to employ financial history to shed light on current developments in the world economy. *The New York Money Market and the Finance of Trade* (1969) was an effort to link the development of financial markets to the growth of trade, a topic of clear relevance to those contemplating the connections between the euro and the Single Market. *The Business of Banking* (1972) sketched the links between banking and economic performance, a subject that is again timely as banking worldwide experiences a wave of consolidation. *The Evolution of Central Banks* (1988) developed an interpretation of the emergence of the lender of last resort that is directly relevant to the controversy over the role of the International Monetary Fund in a world of globalized finance.

If a single paper can be said to epitomize this approach, it is, for us, Goodhart's 1999 comparison of the Asian financial crisis with late-19th and early-20th century banking and currency crises.[2] The Asian crisis, he argues, was not the singular event portrayed in recent accounts. Rather, it bore a striking resemblance to financial crises a century before because it erupted in circumstances that, in important respects, recreated the economic and financial

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[1]Prepared for the conference in honor of Charles Goodhart, held at the Bank of England, 15-16 November. We thank Forrest Capie for helpful comments and the National Science Foundation for financial support.

[2]See Goodhart and Delargy (1998). We also draw on the longer version of this paper (Delargy and Goodhart 1999) for documentation and citations below.

environment of that earlier era. The capital flows of the 1990s, like those of the 1890s, were directed toward the private sector, Goodhart argues, in contrast to the period centered on the 1970s, when the public sector was on the borrowing end. Hence, late-19th century crises, like their late-20th century counterparts, were not typically preceded by chronic government budget deficits. Rather, problems originated in the private sector, generally in poorly-managed, poorly-regulated banking systems and in the boom- and bust-prone real estate and property markets. Fuel was poured on the fire by foreign lending encouraged by open capital markets and buoyant export growth. When something — typically a shock to capital markets or a shock to exports — disrupted these processes, the entire financial house of cards could come tumbling down. The subsequent crises were strikingly similar in the overseas regions of recent European settlement at the end of the 19th century and in East Asia at the end of the 20th.

Progress in the study of history occurs by quibbling over details. In this paper we quibble over aspects of Goodhart's characterization of late-19th century financial crises.[3] In a sense we attempt to do both more and less than our predecessor. We present a quantitative analysis for a larger number of pre-1914 banking and currency crises, 32 in all, and some comparisons with the interwar and post-World War II periods.[4] At the same time, we limit our qualitative discussion to one crisis: the Argentina-Baring crisis of 1890-1, an episode that has some particularly

[3]This paper draws heavily on our previous work on this subject, some of which was done in collaboration with Douglas Irwin, Daniela Klingebiel and Soledad Maria Martinez-Peria.

[4]In contrast, Delargy and Goodhart analyze nine pre-1914 crises: Austria and the United States in 1873, Argentina and the U.S. in 1890-1, Australia, Italy and the U.S. in 1893, and Italy and the U.S. in 1907.

revealing parallels with the 1990s.[5]

2. The Earlier Period of Globalization

Goodhart dates the first age of globalization to the laying of the transatlantic telegraph cable, which by providing a real-time communications link between England and North America transformed the information environment. Financial markets are markets in information; by speeding transatlantic communication, the advent of the cable in the 1860s thus transformed their operation.[6] While there was a lag before the consequences were felt owing to the U.S. Civil War, which disrupted the country's export trade and access to foreign finance, by the late 1860s the process of large-scale capital transfer had resumed, reaching levels never seen before. The first age of globalization spanned the next 40 years until World War I brought it to a close.

This, however, is only part of the story. However appealing to modern readers may be the notion that changes in information and communications technologies drove the expansion of global financial markets, there were other, perhaps equally important, factors at work. One was the growth of trade, stimulated by the Cobden-Chevalier Treaty of 1860 which was generalized

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[5]In particular, there are parallels with the Mexican crisis of 1994-5 as well as with the Asian crisis of 1997-8, as one of us has emphasized previously (Eichengreen 1999). In contrast, Delargy and Goodhart provide qualitative accounts (in the appendix to their paper) of each of their nine crisis cases.

[6]Garbade and Silber (1978) report that the time required to transmit information between London and New York, which had previously been as long as three weeks, dropped to one day with the inauguration of the cable; by 1914 the time required for cable transmission had fallen to less than a minute. Comparing data on the prices of U.S. bonds in New York and London four months before and after the cable, the authors find a significant decline in the mean absolute difference. There is good reason to think that there were comparable changes when the cable reached Buenos Aires in 1878 and Tokyo in 1900.

to other countries through the operation of most-favored-nation clauses. In the four decades leading up to World War I, as transport costs fell and governments adopted trade-friendlier commercial policies, there was nearly a doubling of the share of exports in GDP in Angus Maddison's sample of countries.[7] Certainly the enthusiasm of British investors for Argentine railway bonds would have been less in the absence not just of cable traffic and refrigerated steamships but also of an open British market for chilled beef. Without access to foreign goods markets, debtors could not have earned the foreign exchange needed to service and repay their loans, and in the absence of expanding export markets their incentive to stay on good terms with their creditors, who were also their customers, would have been less. For all these reasons, the connections between trade liberalization and the expansion of lending were prominent prior to World War I, just as in the 1990s.[8]

The monetary regime was another important factor in the expansion of global capital markets in the late 19th century. The international gold standard was a post-1870 affair. Adherence to the gold standard signaled a government's commitment to sound and stable policies. Credibly subordinating other goals of policy to the maintenance of a fixed domestic gold price and limiting exchange-rate movements against the currencies of the creditor countries (which meant, above all, against Britain and the pound sterling) made it easier to accumulate and service foreign-currency-denominated debts. For countries borrowing in foreign exchange

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[7]Maddison (1995), Table 2-4.

[8]While this is not a paper on the 1920s and 1930s, this is the obvious period to point to in order to highlight the difficulties that arise for cultivating and sustaining a high level of international financial transactions when trade is depressed by tariffs, quantitative restrictions, and macroeconomic problems. A recent treatment of these themes is James (2001).

(which meant most countries, in practice), this limited balance-sheet problems caused by sharp exchange-rate changes. Limiting balance-sheet risk ex post in turn enhanced the ability of overseas regions to borrow in foreign exchange ex ante.[9]

The destinations of British capital tended to be abundant in natural and human resources. This is clear from the fact that more than ten per cent of British overseas lending in the first age of globalization was for enterprises engaged in natural-resource extraction, while much of the rest was for resource-based or resource-intensive industries, as in the case of the railways providing transport services to the wheat farmers of Canada, Argentina and the United States.[10] (See Table 1.) Harnessing this resource base in an export-relevant way entailed the immigration of European workers who brought with them knowledge of the industrial and agricultural techniques of the "first industrial revolution," not to mention labor power.[11] Like high levels of trade, these high levels of immigration would not have been possible in the absence of technological advances in ocean- and land-going transportation (O'Rourke and Williamson 1999).

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[9]This is the argument for dollarization made today by, inter alia, Hausmann et al. (1999), namely, that only by adopting the currency of a creditor country can emerging markets eliminate the currency mismatches that allow exchange-rate changes to become a transmission belt for financial fragility and thus limit access to international capital markets. Evidence that adherence to the gold standard enhanced terms of financial market access can be found in Bordo and Rockoff (1996).

[10]See Stone (1999). The role of natural resources as a magnet for British investment is a theme of Clemens and Williamson (2000).

[11]Which was equally essential given the decimation of native populations by the immigrants' guns and germs. European immigration was importantly supplemented, of course, by involuntary immigration from Africa, especially to tropical areas where climate was inhospitable and work in plantation agriculture was unattractive to European labor.

The point is that the first age of financial globalization resulted from technological, institutional and policy changes extending well beyond the realm of information and communication. It presupposed a technological revolution that vastly increased the productivity of resource-based traded-goods industries.[12] It depended on tariff reductions and a transport revolution to facilitate the growth of trade. And it would not have thrived without a technological and political environment that encouraged cross-border labor flows.

3. Information, Institutions and Markets

The bulk of the overseas finance in question went to economies whose financial markets and institutions were well developed by the standards of the time.[13] (See Table 2.) It went to countries with bank branch networks capable of gathering information on local market conditions and with well-developed interbank and commercial paper markets capable of redeploying liquidity. It went to countries that welcomed the independent subsidiaries of European investment banks.[14] It went to countries where the issuers of listed securities disclosed

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[12]Industry, in this context, should be understood to include late-19th century agriculture, which was increasingly mechanized and utilized the hybrid seeds churned out by manufacturing concerns and government agencies. On the natural-resource basis of American industry in this period, see Wright (1990) and Irwin (2000).

[13]Clemens and Williamson (2000) refer to this tendency for capital to flow to relatively advanced high-income countries as "the Lucas Paradox." Twomby (1998) similarly shows that, after controlling for other determinants of its volume and direction, per capita income in 1913 has a positive, large and statistically-significant effect on the level of capital inflows. This is a different pattern than today, when large amounts of foreign investment go to relatively low-income countries.

[14]Each of the seven leading London merchant banking houses established a North American counterpart -- Davis and Gallman (2000) refer to them as "junior partners" -- to gather market intelligence and arrange local transactions. The senior partners provided short-term credit

information on their financial affairs. It went to countries where contracts were enforced and insolvency procedures operated reliably.

In our enthusiasm for the sophistication of late-19th century international capital markets, we should not lose sight of the other side of this coin, namely, the persistence of information problems rooted in the still-early development of financial institutions and markets. Foreign capital flowed into U.S. securities despite the chronic failure of the New York Stock Exchange to require the disclosure of financial information by companies listing shares.[15] It flowed to the U.S. despite the absence of uniform auditing and accounting standards prior to the establishment of the Interstate Commerce Commission in 1887 and its imposition in the 1890s of a uniform accounting standard on the railways for which it set rates. Foreign capital financed Argentina's provincial banks despite their well-known tendency to issue false balance sheets and report nonexistent dividends.[16]

These examples remind us that, the advent of the transoceanic cable and radio-telephone notwithstanding, the information environment was highly imperfect by today's standards. There was no Worldwide Web on which to gather information on stocks, bonds and debentures; *The Investor's Monthly Manual, Burdett's Stock Exchange Official Intelligence, Poor's Manual of Railroads,* and *Herapath's Railway Journal,* while serviceable, were imperfect substitutes. There was no IMF Data Dissemination System to provide information on public finances, although the annual reports of the Corporation of Foreign Bondholders aspired to some of the

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to the underwriters and marketed the securities to British investors.

[15]See Sylla and Smith (1995).

[16]Williams (1920), p.58.

same functions. There were no sovereign rating agencies or credit departments prior to the establishment of such functions within the *Credit Lyonnais* at the end of the 19th century.[17] Even the geographical correlation of capital and labor flows reminds us of the limits of the information environment: many investors relied on the information about foreign market conditions sent back to their native country by recent immigrants.[18]

From the imperfect nature of the information environment flow the distinctive aspects of late-19th century lending that differentiate it from international lending today. First, the vast majority of overseas and foreign investment in the half century before 1914 was in debt securities and interbank deposits; only a small fraction took the form of equity. Debt has priority; those who hold it sacrifice a share of extraordinary profits in return for the security that seniority provides. There is an incentive to do so when the information environment is impacted and serious principal-agent problems result from the separation of ownership from control. Thus, we regularly see firms graduate from bank finance to equity finance as information about their economic and financial prospects becomes standardized and assimilated.[19] We similarly observe economies graduating from debt to equity finance as the information environment improves.[20] In

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[17]See Flandreau (1998).

[18]Clemens and Williamson (2000) refer to this as the "venerable capital-chased-after-labor explanation." The extent to which it reflected the derived demand for population-sensitive investment or the reverse flow of information, both of which could have attracted foreign capital, is a topic for future research.

[19]This is the so-called "pecking order" theory of finance, as applied to history by Baskin and Miranti (1997).

[20]Rajan and Zingales (1999) describe the pattern but also a number of instances where it was overridden by government intervention.

the late 19th century, however, this graduation ceremony for the most part remained a distant prospect, and debt securities dominated international financial flows.

Second, the operation of decentralized financial markets was importantly supplemented by the operation of financial institutions. Financial intermediaries — banks in particular — are in the business of information. They develop monitoring technologies in order to assemble and process information at lower cost than is possible for individuals. That overseas investors appreciated the efficiency of these monitoring technologies is evident in the willingness of Scottish savers to make deposits with British branches of Australian banks, and in the willingness of British investors, institutional and individual, to place deposits with Argentine banks. It is evident in the underwriting role of the great investment banks, which staked their reputations on the success of overseas bond flotations.[21] Unfortunately, we know little about the volume of foreign lending directly carried out by banks; quantitative analysis has focused on bond flotations since this segment of the international capital market is amply documented.[22]

A third reflection of the prevalence of information asymmetries is the sectors into which foreign finance flowed. The data on bond flotations suggest (subject to the preceding caveats) that some 40 per cent of British overseas investments in quoted securities was in railways, while

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[21]It is even evident within countries, as in the case of the U.S. commercial paper market, which was limited to those parts of the United States where the banking system was sufficiently developed to provide an adequate supply of reputable one-name paper (Davis 1965).

[22]Then as now, a substantial fraction of these flows were short term, which compounds the difficulty of estimating the volume of short-term capital flows and comparing it with today. Bloomfield's (1968) discussion suggests that short-term flows were significantly smaller than long-term flows, in contrast to today: Bank for International Settlements data on turnover in foreign exchange markets suggest that gross flows are in the range of $1.25 trillion a day, or more than $250 trillion a year, much larger than corresponding figures for long-term capital flows.

30 per cent was in the issues of national, state and municipal governments, 10 per cent was in resource-extracting industries (mainly mining), and 5 per cent was in public utilities. Commercial, industrial and financial activities that are so prominent today are notably absent from this list. That the Feldstein-Horioka puzzle (the high correlation of national savings and investment rates) was less evident before 1913 has been widely touted as proof of the exceptional integration of late-19th century capital markets.[23] But while 19th century current account deficits reached high levels and the emerging markets of the day financed substantial shares of their investment from foreign sources, what is striking is that wide swathes of their economies remained virtually untouched by foreign finance.

Asymmetric information can explain this sectoral composition of investment portfolios.[24] Consider the dominance of railway bonds. Investors could verify how much track had been laid, where it had been laid, and how much traffic it carried more easily than they could evaluate the investment decisions of the managers of manufacturing, financial and service-sector concerns, many of whose assets were intangible. These considerations explain the preference of British investors for "coal roads," that is, railways whose traffic was disproportionately comprised of coal haulage, for which it was relatively straightforward to forecast operating revenues. The information environment similarly helps to explain the disproportionate importance of

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[23]Including by Delargy and Goodhart themselves.

[24]So too can other factors, although this takes us away from our story. America's transcontinental railways were built only once, in this period. Private as well as social returns on railway investment were attractive. The dominance of infrastructure investment and railway investment in particular in the capital flows of this period cannot be overstated. Twomby (1998) finds that "railroadization" (kilometers of railroads in operation divided by GDP) was a significant determinant of both total and portfolio capital inflows in this period and even stimulated complementary FDI.

investment in resource extraction and public utilities. Mining companies had tangible assets; it was relatively straightforward to monitor the number of mines dug or tons of coal raised to the surface. Utility companies laid gas lines, strung electrical cables, and built power plants. Notwithstanding scandals like the Buenos Aires Water Supply and Drainage Loan of 1888, such investments were relatively straightforward to monitor. A similar argument can be made about governments and their ability to tax. It is thus not surprising that six out of every seven pounds sterling of portfolio investment were in securities of debtors with tangible, transparent assets (the ability to tax in the case of governments, track and rolling stock with a well-defined revenue-raising capacity in the case of railways, mineral reserves in the case of mining companies).[25]

Information asymmetries can also explain the limited role of foreign direct investment in this earlier age of financial globalization. A considerable majority of foreign investment prior to 1914 was portfolio investment, whereas today direct investment is the more important component. Direct investment was discouraged by the difficulty of controlling branch plants and foreign subsidiaries and of preventing management from pursuing private agendas in an age when information and communications technologies were more rudimentary. When European producers established operations in the New World, they created them as free standing companies. Free standing companies were those incorporated in Britain, France, Belgium and

[25]Davis and Gallman (2000), focusing on the "19th century emerging markets" (Argentina, Australia, Canada and U.S.), find that nine of every ten pounds of British investment in between 1865 and 1890 went into railroads and government bonds. According to their estimates, the fraction ranges from 86 per cent in Australia to 92 per cent in Canada. Davis and Huttenback (1986) provide comparisons with domestic investment in quoted securities. Their Chart 2.8 confirms the picture of a pattern of overseas portfolio investment concentrated in agricultural and extractive activities (especially in the Empire), in transportation, and in public utilities. Domestic portfolio investment, in contrast, was disproportionately concentrated in manufacturing and in the commercial and financial sectors.

other European countries for the sole purpose of investing and doing business in an overseas market. Their partners made special investments in information about foreign markets, and by bundling management and control they limited agency problems.[26]

The dominance of infrastructure investment, which flowed in part from the nature of the information environment, had implications for the transfer problem. It meant that much of the relevant infrastructure network had to be put in place before the returns began to accrue; this created an incentive to invest when other investment was taking place so that returns were not unduly delayed.[27] Foreign investment tended to cluster in time, in other words. But the nature of this investment made debt service difficult because of the long gestation period. In the case of a railroad, the funds had to be raised, the track had to be laid, and only then might settlement, cultivation and finally traffic respond to the availability of transportation services. Receipts to service the loan could be few initially, making it hard to keep current in the absence of additional debt finance.

This brings us finally to the crisis problem. It can be argued incomplete information created an environment conducive to herding and volatility (Kindleberger 1978). Investors had

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[26]Free standing companies, in the words of Wilkins (1998, p.13), "were structured to solve the problem posed earlier; business abroad was risky; it was hard to obtain adequate and reliable information about firms in distant lands; returns were unpredictable; but there were clearly opportunities abroad; a company organized within the source-of-capital country, with a responsible board of directors, under source-of-capital country law, to mobilize capital(and other assets) and to conduct the business in foreign countries could take advantage of the opportunities, while reducing the transaction costs by providing a familiar conduit."

[27]While there were incentives not to build ahead of demand, it was also important not to allow potential competitors to preempt the market. Thus, railroads attempted to collude, holding off from building in advance of settlement and cultivation, but to jump in and preempt the most attractive markets as soon as there were signs of the collusive agreement breaking down. Hence, railroad construction tended to cluster in time, as did the external finance needed to underwrite it.

an incentive to mimic other investors on the chance that the latter were better informed. Working in the other direction was the fact that foreign investment was more geographically concentrated in the late 19th century than today. It was heavily directed toward the United States in the 1870s, Australia and Argentina in the 1880s, and Canada and Brazil in the first decade of the 20th century.[28] (See Table 3.) By implication, the phenomenon pointed to by Calvo and Mendoza (2000) -- that the more diversified are portfolios, the less is the incentive for investors to engage in the costly acquisition and processing of information about each market in which they invest, and hence the greater is the tendency toward herding -- may have been less prevalent a century ago.[29]

Delargy and Goodhart suggest that pre-1914 crises resembled the Asian crisis in that they originated in the private sector. Nineteenth century capital transfer, they argue, was private-to-private lending: funds flowed from private investors to private-sector recipients. It follows that the typical 19th century crisis was not preceded by ballooning public-sector deficits leading to unsustainable current account balances. Rather, it occurred when private investment went awry -

[28]Argentina again become important in the period 1901-1913, investment there having been forestalled by the financial crisis that set in after 1889.

[29]This suggests that contagion due to herding may have been less of a problem a century ago. Historical evidence on this question is scant. The two studies of which we are aware, Bordo and Murshid (2000) and Mauro, Sussman and Yafeh (2000), reaching opposing conclusions. Bordo and Murshid observe that the correlation of asset returns across markets (both advanced and emerging) rises in turbulent periods and ask whether this tendency has been growing stronger in recent years (compared to the earlier period 1880-1914). They find scant evidence of this; to the contrary, their findings point in the other direction, to a declining tendency for cross-market correlations to rise in turbulent periods. Mauro, Sussman and Yafeh study the co-movement of emerging market spreads in the two periods of financial globalization, 1870-1913 and the 1990s. They find that country-specific events played a larger role in the determination of spreads in the earlier period, while global conditions play a larger role today. This is suggestive of a growing role for common shocks, common policies, or contagion.

- when, owing to misjudgment, malfeasance or unexpected shocks, a project did not pay.

This characterization is too simple, in our view. Some 40 per cent of the overseas investment intermediated by the bond market in the period 1865-1913 went into government and government-guaranteed loans (Table 4). Authors like Feis (1930) and Fishlow (1985) emphasize the problematic nature of much of this lending. Governments borrowed for military adventures, pork-barrel projects, and public consumption.[30] These "revenue borrowers" had chronic fiscal problems, almost by definition. As *The Bankers' Magazine* wrote on the eve of the Baring Crisis, "The Government...has recklessly squandered the public funds. State grants have been made to every kind of undertaking; and although all the latter cannot be said to be useful, a good many were not required at present. Concessions have been lavishly given for new railways with heavy State subsidies, all of which are to be paid in gold, often where lines already exist, or where there is no demand for them. Grants have been furnished to canals, the utility of which may be greatly questioned and gold shot into ports which will not be require for a long time to come."[31]

The problem, in other words, was not limited to the private sector. Debt-servicing difficulties were prevalent (and default rates were high) where borrowing took the form of "revenue finance" (to supplement normal sources of public-sector revenue) rather than "development finance" (to finance economic development and the development of export capacity, in particular). These observations suggest that focusing on the private-sector sources of

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[30]Fishlow cites Munhall's reference to the large equalizing sum on the Egyptian public accounts for "ballet dancers, etc."

[31]*The Bankers' Magazine* (May 1890), p.776.

crises loses sight of important aspects of the problem.[32]

4. 19th Century Financial Crises: How Do They Compare to Today's?

Pegged exchange rates, high capital mobility, asymmetric information, and weak institutions clearly comprised a fertile environment for crises. In these respects if not others, the crises of the pre-1914 era bear no little resemblance to the Asian crisis of 1997-8 and other recent crises. But how extensive are the parallels? To answer this question, we have attempted to apply a consistent set of criteria to date and measure crises. We follow 21 countries, classified as industrial or emerging (although changes in their economic development lead us to reclassify several emerging markets as industrial economies as we move between periods). Since the number of candidate countries has increased considerably since the independence movements of the 1960s, we also conduct the same exercise for a larger sample of 56 countries starting in 1973.

We distinguish banking crises, currency crises and twin crises. For an episode to qualify as a currency crisis, we must observe a forced change in parity, abandonment of a pegged exchange rate, or an international rescue.[33] For an episode to qualify as a banking crisis, we must observe either bank runs, widespread bank failures and the suspension of convertibility of

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[32]Two partial correctives are Flandreau (2000) and Bordo and Flandreau (2001).

[33]In addition, we construct an index of exchange market pressure, calculated as a weighted average of the percentage change in the exchange rate, the change in the short-term interest rate, and the percentage change in reserves, all relative to the same variables in the center country. A crisis is said to occur when this index exceeds one and a half standard deviations above its mean. We count an episode as a currency crisis when it shows up according to either or both of these indicators.

deposits into currency such that the latter circulates at a premium relative to deposits (a banking panic), or significant banking sector problems (including but not limited to bank failures) resulting in the erosion of most or all of banking system collateral that are resolved by a fiscally-underwritten bank restructuring.[34] For an episode to classify as a twin crisis, we must observe both a currency crisis and a banking crisis in the same or immediately adjacent years. In tabulating the results, we distinguish the pre-1914 period, the interwar years, the Bretton Woods period (from the close of World War II through 1971), and the post Bretton Wood era (1973-1998). Here we concentrate on the comparison between the two eras of globalization, 1880-1913 and 1973-1998.[35]

The number of crises is shown in Table 5, the corresponding frequencies in Table 6. Evidently, a randomly-selected country had a five percent probability of experiencing a crisis in a randomly-selected pre-1914 year. Since 1973, in contrast, the corresponding probability has been twice as high (10 per cent for the same sample of countries, 12 per cent for the expanded sample, the latter reflecting the even greater incidence of crises in low-income developing countries). While the frequency of banking crises was roughly the same before 1914 and after 1972, currency crises were much more frequent in the final quarter of the 20th century (and, as a

[34]This allows us to distinguish between pre-1914 crises in which lender of last resort intervention was either absent or unsuccessful, and subsequent crises in which a lender of last resort or deposit insurance was in place, and the main problem was bank insolvency as opposed to illiquidity. This generalization is not to deny that a number of banking crises occurring in Europe in earlier years did not involve panics and in this respect were not dissimilar from episodes occurring more recently..

[35]The complete comparison is in our earlier article (Bordo, Eichengreen, Klingebiel and Martinez-Peria 2001).

result, there was a growing frequency of twin crises).[36] Evidently, the credibility of the commitment to peg the exchange rate under the gold standard was part of the explanation for the stability of the pre-1914 financial environment.[37] Note also that the distinction between gold-standard core and periphery, which features prominently in the historical literature, is evident in the disproportionate concentration of prewar currency crises in late-19th century emerging markets.

Delargy and Goodhart argue that these 19th century crises were preceded by credit booms that fueled unsustainable rates of growth.[38] Foreign capital flooded into emerging markets via the banking system and the bond market and was deployed to domestic uses, some productive, some less so. The construction and real-estate sectors boomed. The current account deficit widened, reflecting rising spending on imported consumption and investment goods. In Argentina, a classic instance of a foreign-capital-led consumption boom, the level of domestic savings fell by some 20 per cent in the decade of the 1880s.[39] The problem was poor governance

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[36]While the frequency of banking crises was strikingly similar in 1880-1913 and 1973-1998, the interwar and Bretton Woods periods are strikingly different, the former for the absence of banking crises (there was in fact one episode of banking instability in the sample, in Brazil in 1964, which is recorded as a twin crisis), the latter for the exceptional frequency of banking-sector problems (primarily in the Great Depression of the 1930s).

[37]Others (e.g. McKinnon 1997) would also point to the absence of large swings in the bilateral exchange rates of the creditor countries, analogous to today's dollar-euro and dollar-yen swings, as an aspect of this international financial system that was conducive to currency stability in the developing world.

[38]"Growth in our pre-1914 crisis countries was generally high on average in the five years preceding the crises, and it fell fairly sharply in the five years following the crises" (Delargy and Goodhart 1999, p.16).

[39]Eichengreen (1999), p.261. Saving is calculated as the current account balance minus investment. The comparison is between 1884-86 and 1887-89.

of domestic financial institutions together with the naivete of foreign investors. The result, all too often, was a sharp shock which curtailed capital inflows and required a shift in the current account from deficit to surplus, something that could only be accomplished through a significant compression of domestic spending.

To this picture must be added several additional aspects of the financial setting without which analysis of the prewar crisis problem is incomplete. First, in the late 19th century, as in the late 20th, crises were more likely when loose credit conditions in the lending countries first pushed investors, searching for yield, toward emerging markets, and when those loose credit conditions were then suddenly tightened.[40] For much of the decade preceding the Argentina-Baring crisis, for example, interest rates were low in the money centers, reflecting the weak state of international demand. London and Edinburgh were soon "honeycombed with agencies" collecting money for banks in South America and the Antipodes.[41] Goschen's 1888 debt conversion, which locked in lower interest rates for the British government, ignited a rise in the price of French 3 per cent *rentes* and allowed the Prussian government to issue 3 per cent consols. As Max Wirth described the situation, "German investors, at this time, preferred to purchase foreign securities with high rates of interest; and were so imprudent as to be caught by

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[40]The stage was set for the debt crisis of the 1980s, for example, by lax monetary policies in the industrial core followed by the sharp interest-rate increases of the "Volcker shock." Calvo, Leiderman and Reinhart (1993) similarly showed that the resumption of capital flows to emerging markets in the early 1990s was stimulated by the decline in interest rates in Japan, Europe and the United States, and famously predicted that financial difficulties would develop when this trend was reversed. Eichengreen and Rose (2000) show that rising interest rates and declining growth rates in the industrial core were, in this same period, significant predictors of the probability of banking crises.

[41]Bailey (1959), p.252.

the radiant descriptions of rising wealth in Argentina, and to buy stocks and bonds from this ill-governed republic."[42]

This process had within it an equilibrating mechanism but not one that operated smoothly. As lending boomed and bank reserves declined, private financial institutions borrowed from central banks. The latter, following what later came to be called the rules of the game, raised interest rates. The Bank of England, for example, raised its discount rate from 4 to 6 per cent in the second half of 1889. It is no coincidence that the Argentina-Baring crisis erupted in the wake of this policy action.

The speculative boom that developed along with the influx of foreign capital typically reflected more than the inadequate internal controls of local banks. Repeatedly, governments distorted the incentives of bankers so as to become implicated in their actions. In Australia, problem banks secured government accounts through "backstairs influence"; those which succeeded in doing so entered into an agreement to support one another in the event of distress.[43] In Argentina, the provincial banks that aggressively chased foreign funding in the 1880s were little more than the borrowing arms of provincial governments; they were "banks in name only" (Williams, 1920, p.58). Some made advances not just to provincial governments but to the

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[42]Wirth (1893), p.227. The tendency for low interest rates to inflate a financial bubble is also clear in this episode. In the words of *The Economist* (2 August 1890, p.984), "Reckless borrowing and lavish expenditure have been the order of the day both within the Governments and with the people, and the readiness with which European investors have responded to the never-ending appeals for new loans has done little to credit their intelligence. But the speculative bubble has now been pricked..."

[43]*Bankers' Magazine* (1893), cited in Delargy and Goodhart (1999), pp.2-3.

politicians personally.[44] "Persons with influence in 'high quarters' were favoured by the banks," *The Bankers' Magazine* complained, "often in preference to old well-known firms."[45] National and provincial mortgage banks extended loans to large landowners on the security of their real estate. Many of these loans reflected "encroaching nepotism" (to again quote Max Wirth). "Loans were allowed less by reason of gold security than as a matter of personal favor."[46] "It has long been notorious that the [National] Bank was grievously mismanaged," *The Statist* observed (with benefit of hindsight in 1890), "and it is almost universally believed that the mismanagement has been accompanied by gross corruption...People in the Republic believe, in short, that the Bank has been made a convenience of by those in high places..."[47] The influence of these politicians and of large landowners (frequently one and the same) gave grounds for thinking that the banks financing them would not be allowed to fail. Thus, as early as 1889 the Argentine Government surreptitiously authorized the issue of additional paper money by the National Bank and the Provincial Bank of Buenos Aires to deal with mounting banking-sector problems. It is not surprising, given this backdrop of implicit guarantees, that European investors

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[44]*The Economist* (9 August 1890, p.1018) writes of lending under the presidency of Dr.Juarez Celman that "Dr. Celman had been President all through the great boom in Argentine finance, and was credited generally in Buenos Ayres with having played into his own hands and those of his friends after the most bare-faced fashion. Indeed, he was openly classed amongst the 'robbers' of his country."

[45]*Bankers' Magazine* (May 1890), p.777.

[46]Wirth (1893), p.219.

[47]*The Statist* 26 (5 July 1890), pp.15-16.

were inadequately critical of the value of the banks' mortgage-backed securities.[48]

When capital flows reversed direction, the result was a downturn in "both economies and national industries often exceeding 10% or 20%," as Goodhart and Delargy put it. The authors base this estimate on statistics of industrial production, railroad freight haulage and imports for their nine crisis episodes. Historical time series on GDP for the present sample of 21 countries yield smaller estimates, because GDP is less volatile than imports and industrial production and because many of Delargy and Goodhart's nine cases are exceptionally severe crises.[49] Table 7 reports estimates of output losses analogous to those in the modern literature on financial crises.[50]

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[48]Here, clearly, is an important parallel with the Asian crisis that cannot be overemphasized.

[49]The present sample of 32, we believe, is more representative. By these measures, the fall in output in the recent Asian crises was especially steep: Korea's growth rate declined 7 percentage points below its pre-crisis five-year-average growth rate, 8 percentage points below its three year pre-crisis average and 7 percentage points from the year preceding the crisis. Indonesia's performance was similar, while Thailand's was the worst (at minus 13, 13, 11 percentage points respectively). The severity of these countries' crises in 1997-87 is well known; the point here is that their recessions were dramatic relative to the typical crisis in emerging markets prior to 1914. Turning from typical to exceptional, how does recent Asian experience compare with the worst of the pre-1914 era? The two most infamous pre-World War I crises in emerging markets, the U.S. in 1893 and Argentina in 1890, were even worse than Asia in recent years. For the U.S., growth during the crisis years declined by 9 percentage points relative to its previous five-year trend, 12 percentage points below its three-year pre-crisis trend, and 14 percentage points from the pre-crisis year. For Argentina the numbers are even more dramatic if the conventional statistics are to be believed: minus 17%, 20%, 24%, with recovery in growth not complete after 5 years. The exceptional severity of these episodes should serve as a warning that generalizations about the pre-1914 period must be drawn cautiously, since that period appears to have featured a small number of extraordinarily severe crises along with numerous milder episodes.

[50]The output loss is calculated as the sum of the differences between actual GDP growth and the five year average preceding the crisis until growth returns to trend. Obviously, there is no single or, for that matter, best way of measuring output losses. In previous work (e.g. Bordo and Eichengreen 1999; Bordo, Eichengreen, and Irwin 1999), we have used somewhat different measures, obtaining rather different results. While this underscores our point about the

The output loss from crises appears to have been slightly larger before 1913 than after 1973 (some 10 percentage points of cumulative growth lost versus 8).[51] Output losses were larger then than now for both currency crises and banking crises. Both then and now, output losses were larger in emerging markets than industrial countries. The notable exception is twin crises. These, clearly, have grown more severe. Recall from the preceding that they have also grown more prevalent. This points to what is new and disturbing about the final quarter of the 20th century.

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sensitivity of these calculations to method, we would also argue that the estimates presented here are more reliable than those we have published previously, for many of the reasons argued in IMF (1998). (That successive revisions produce changes is disconcerting, but this is how progress occurs in the social sciences.) Mulder and Rocha (2000) argue that the approach used here will overstate the output loss because pre-crisis growth tends to be unsustainably high, rendering it an inappropriate basis for comparison. They also observe that truncating the calculation at the point where the growth rate returns to trend will understate the loss because the level of output, as distinct from the growth rate, remains depressed for several subsequent years. Using a Hodrick-Prescott filter to estimate the trend, they obtain output losses for the 1973-98 period that are a multiple of ours. However, some of their other estimates yield smaller losses for emerging markets than those reported here. It will be evident that these alternatives are no less problematic than the present method. Adjustments to the pre-crisis growth rate are arbitrary. And truncating the calculation at, say, the point where growth returns to the level extrapolated from some pre-crisis trend rather than at the point where the growth rate recovers to its pre-crisis rate implies the equally arbitrary assumption that the level of output is invariant with respect to the crisis, even over short periods. Fortunately, there is no reason to think that these biases are more severe in one period than another. Since we are primarily concerned with intertemporal comparisons, in other words, such biases are likely to be of less moment here than in other applications. Note that sample averages are accompanied by their standard deviations. These again underscore the difficulty of making valid generalizations about the severity of crises. Previous authors have emphasized heterogeneity of business cycles. The same, evidently, is true of crises.

[51]In addition to the large standard deviations surrounding these estimates, it is worth recalling the problem of spurious volatility that may infect retrospective estimates of GDP for earlier historical periods (Romer 1989). Insofar as estimates for these earlier periods are spuriously volatile and the most volatile cycles are those accompanied by crises, there may be a tendency to exaggerate prewar output losses.

These findings are robust to limiting consideration to only those crises with output losses, as in Table 8. And it does not appear that the unusual severity of recessions accompanied by crises simply reflects causality running from the recession to the crisis. The additional severity of downturns that occur in the wake of crises is robust to the inclusion of other explanatory variables that help to account for the unusual amplitude of some business cycles and for instrumentation of the crisis indicator.[52]

The lending-boom interpretation of these episodes is supported by the behavior of the current account. Typically, the current account deficit widened by an additional two per cent of GDP in the run-up to a crisis.[53] But sharp shifts from deficit to surplus in the wake of the event are not uniformly evident: on average, all that occurs is the elimination of the preceding two-percent-of-GDP widening of the deficit, while larger movements which shift the current account into substantial surplus are only evident in the wake of twin crises. Delargy and Goodhart also note that sharp current-account reversals are not uniformly evident; they did not occur in U.S. in 1907 or in Italy in 1893 and 1907 (a third of the authors' nine cases).[54] In our larger sample, sharp current account reversals are observed on average only in response to twin crises -- events that produce particularly dramatic falls in domestic absorption.

Monetary variables (the money stock and interest rates) display the same striking behavior in our larger sample as in the Delargy-Goodhart cases. While interest rates shoot up

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[52]See Bordo, Eichengreen, Klingebiel and Martinez-Peria (2001), Table 1.

[53]Bordo and Eichengreen (1999), Figure 1.

[54]Interestingly, we would classify two of these three cases (Italy in 1893 and 1907) as twin crises.

with the outbreak of a crisis, they fall back rapidly. By the second post-crisis year, the real interest rate is back at pre-crisis levels; the same is not true in the post-1972 period, when interest rates remain persistently higher for a period of years.[55] While the rate of growth of the money stock accelerates sharply following the typical post-1972 emerging-market crisis, the same is not true of the pre-1914 years, when there is little movement in the rate of growth of the money stock.[56]

5. The Role of the Monetary Regime

The relatively rapid stabilization of money supplies and interest rates following these pre-1914 crises plausibly reflects what economists refer to as the resumption rule.[57] If a crisis forced a government to allow the currency to depreciate, the argument goes, such depreciation was expected to be temporary. If the depletion of its reserves left the authorities no alternative but to suspend the convertibility of the currency into gold, they were expected to restore convertibility at the pre-crisis gold price once they had put their immediate difficulties behind them. Aware that the authorities were committed to the early elimination of the gold premium, investors had no grounds to fear a loss of monetary and fiscal control. They had no reason to continue to flee

[55]The contrast between pre- and post-crisis interest rates is particularly evident in the case of currency crises.

[56]The data are for M2. The pattern for all crises is, of course, a weighted average of that foreign banking and currency crises. There is some evidence of an acceleration in M2 growth following currency crises, as if countries freed of the constraints of the gold standard followed less stringent monetary policies, while M2 growth decelerates following banking crises, presumably reflecting a shift out of deposits.

[57]See for example Bordo and Kydland (1995).

domestic financial assets and markets. To the contrary, to the extent that the authorities were expected to reverse the previous depreciation (as had England in the paper-pound period that ended in 1821, and again following other crises like those of 1825, 1847 and 1857), capital losses today increased the likelihood of capital gains subsequently. Capital flows might not just stabilize but gradually reverse direction.

From the rapid stabilization of interest rates and money supplies and the behavior of industrial production and imports in their selection of cases, Delargy and Goodhart conclude that recovery from financial crises was relatively rapid before 1914 because of the credibility of this resumption rule. McKinnon (1997) makes a similar argument; in his variant, currency crises were less acute before 1914 because of the operation of what he calls "the restoration rule."[58] "What gave the pre-1914 gold standard its long-run resilience," he asks? "After any short-run crisis that forced the partial or complete suspension of gold parities, the unwritten 'restoration' rule...was that the country in question return to its traditional gold parity as soon as practicable. Even during a liquidity squeeze or other short-run trauma, longer-term exchange rate expectations remained regressive with respect to these traditional parities."

Compared to these pre-1914 cases, Asian countries in the 1990s fared less well because of the absence of an analogous rule.[59] There, as Delargy and Goodhart put it, "the combination of a downwardly flexible exchange rate (raising the domestic burden of dollar debt) combined with efforts to keep the Asian countries from imposing moratoria on outward debt payments, plus

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[58]McKinnon (1997), pp.518-519.

[59]Or so it is argued. This notion is implicit in the advice of authors like Hanke that crisis countries suffering currency depreciation like Indonesia in 1998 should push their currencies back up to pre-crisis levels. See, inter alia, Hanke (1998).

high (often sky-high) interest rates has led to a cocktail of external/internal financial conditions far less conducive to rapid recovery than pre-1914."[60]

Our quantitative analysis suggests that these arguments need to be carefully nuanced. Our estimates do not suggest, contra McKinnon, that currency crises were shorter before 1914 -- the opposite, if anything, was true. Table 9 documents this fact. Recovery time is calculated there as the number of years before the rate of GDP growth returns to its pre-crisis average (where that average is defined in terms of the five years preceding the event).[61] Clearly, these calculations do not support the notion that recovery from currency crises, so measured, was faster before 1913.[62] For the emerging markets in our 21 country sample, it took on average 2 1/2 years for growth to resume before 1914 but only 2 years after 1972. For the industrial countries it took three years before 1914 but only 2 years after 1972.

For banking and twin crises, there *is* some evidence that recovery was faster before 1914.

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[60]Delargy and Goodhart (1999), pp.8-9.

[61]It may be that this conclusion is sensitive to how recovery time is measured. For example, if the credit booms that preceded currency crises were more pronounced in the pre-1914 period, so too could have been the unsustainable acceleration of pre-crisis economic growth, making the re-achievement of that pre-crisis rate of growth a more demanding standard. In fact, however, the estimates in Table 9 differ from those of other studies (viz. IMF 1998) by calculating the pre-crisis trend over a longer period (five years versus three years in the IMF study), which will tend to moderate the impact of any transitory pre-crisis domestic boom. On the other hand, it could be that the depressing effect on the macroeconomy of the persistent deflation needed to push the currency back up to pre-crisis levels could have swamped any beneficial effects of the early stabilization and reversal of capital flight. This would likely be the interpretation favored by the critics of Britain's post-World War I return to gold.

[62]Note that all of our pre-1913 currency crises were in countries on the gold standard, so the statistic in Table 9 is the relevant one. Not only was recovery in fact slower to commence than after 1972, but it was also slower to commence than in the two other periods considered in Table 9 (1919-39 and 1945-71).

The contrast is most notable for twin crises: before 1914, it took two years following the occurrence of one of these events before growth resumed, while the same took nearly four years in the post-1972 period. But this result is heavily driven by the single industrial country case in the pre-1914 sample, France in 1888-9, which was a relatively mild episode. The background to this event was a scheme to corner the copper market in 1888.[63] The Comptoir d'Escompte discounted copper warrants in conjunction with this scheme. When copper prices suddenly fell, the Comptoir suffered heavy losses, and its director committed suicide, prompting a run. Its assets not being sufficiently liquid to satisfy the demands of depositors, the Comptoir then appealed to the Bank of France for assistance, the latter advanced it some 200 million francs on the guarantee of several Paris banks, and the currency came under pressure as a result. But while the banking system came under pressure, widespread bank failures did not occur, and while there was speculation against the franc, it was successfully resisted. This relatively mild crisis drives the contrast in Table 9. Putting it aside, the same conclusion follows for twin crises as for currency crises: there is no evidence of faster recovery before 1914.

Why was the resumption of growth following currency crises, in particular, no faster before 1914? The answer is not hard to find: it lies in the fact that rapid resumption at the old parity was actually the exception, not the rule. Argentina after the Baring crisis took nine years to restore convertibility, hardly a case of quick resumption. Even then the paper pesos that had been circulating since 1885 at a large discount to gold were frozen at 2.3 per gold peso, which represented a large effective devaluation. Brazil took 17 years to resume following its 1889 suspension. Greece suspended in 1885 and only resumed in 1910. Italy suspended in 1894 (in

[63]See Bordo and Eichengreen (1999).

this case silver rather than gold had been the circulating medium) and only resumed in 1927. Portugal suspended in 1891 and only resumed in 1931. It is no surprise that rapid resumption did little to shorten the length of currency crises in the emerging markets of the period, since rapid resumption was not the practice.[64]

The major difference between then and now, we would argue, lay not in currency crises per se but in banking crises and their tendency to spill over to the currency market. Banking crises, although as frequent then as now, were less prone to undermine confidence in the currency in the countries that were at the core of the gold-standard system. Today, the outbreak of a banking crisis typically leads investors to anticipate that the authorities will engage in large-scale credit creation to bail out the banks. Banking crises undermine currency stability, creating the notorious twin crisis problem (Kaminsky and Reinhart 2000). This was not the case a century ago at the center of the gold standard system. Then, banks suspended the convertibility of deposits into currency, currency went to a premium (relative to deposits), and foreign capital -- undeterred by exchange risk -- flowed in to arbitrage the difference, so long as countries remained on gold (Gorton 1987). Perhaps the currency went to a discount, but if it did it was expected to recover subsequently; more arbitrage capital flowed in, in anticipation. Banking crises were still a problem -- indeed, Table 7 suggests that the associated output losses were even larger before 1914 than today -- but the frequency of twin crises was less. When twin crises nonetheless occurred as a result of banking-sector distress spilling over to the currency market (mainly in emerging markets, where the credibility of the commitment to gold convertibility was least -- viz. Argentina), the time to recovery was roughly the same then as now. It was almost

[64]Bordo and Schwartz (1996) provide more detail on these cases

exactly the same for the emerging markets in our 21 country sample; the difference in the 21 country averages between the two periods is entirely accounted for by the relatively minor twin crisis in France, as discussed above.

What mattered in the high-gold-standard period, then, was not so much the readiness of the core countries to resume, since they never had an opportunity to display that readiness. With few noteworthy exceptions, they remained on the gold standard throughout. There are a few industrial-country currency crises in the first column of Table 9, but these were episodes like 1893 and 1907 where currencies came under pressure but that pressure was successfully resisted.[65] For them, it was the hardness of the peg, not their readiness to suspend and resume, that made the difference, and it made that difference most dramatically when other parts of the financial sector (the banking system in particular) were at risk.[66] Where suspensions did take place and the resumption rule could have been practiced -- at the periphery -- it was not. It is not surprising, then, that the image of short currency crises under the gold standard is more fable than reality.

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[65]Resisting these pressures was not costless; post-currency-crisis recessions in the industrial countries prior to 1914 were large, although here there may be special reason to worry that what we are picking up is the tendency for recessions to cause crises rather than for crises to cause recessions. We discuss (and attempt to correct) for this simultaneity problem in Bordo, Eichengreen, Klingebiel and Martinez-Peria (2001).

[66]It is not surprising that countries grew increasingly reluctant, as the century progressed, to suspend and resume when their currencies came under pressure. Willingness to suspend implied the existence of an exchange-rate escape clause. But when the authorities priorities are uncertain (it is not clear when and whether they will suspend), the existence of an escape clause becomes potentially destabilizing (Obstfeld 1997). Hence, their gold standard commitment grew increasingly rigid, rendering temporary suspensions rare to nonexistent in the industrial world.

6. Conclusion

This paper extends a line of research prompted by a question posed to one of the authors by then Deputy Treasury Secretary Lawrence Summers at the height of the Asian crisis. "You study history. Can you tell us, then, whether the crisis problem is growing more severe?"

The answer, so far as we can determine, is that crises are growing more frequent but not more severe. Relative to the pre-1914 era of financial globalization, crises are twice as prevalent today. This increase in frequency can be traced to the growing incidence of currency crises, which in turn points to the role of the monetary regime. A theme of recent research has been the fragility of soft currency pegs in a world of high capital mobility and democratic politics.[67] Central banks should evacuate this unstable middle ground, it follows, in favor of hard pegs (dollar- or euroization) or more flexible rates. It will not surprise readers familiar with our earlier writings that we have considerable sympathy for this view. Nor does it surprise us that the frequency of currency crises is greater today than under the gold standard of a century ago.

But there is less evidence that the output losses from crises are growing or that the time required for recovery is lengthening. The output losses associated with crises, as we measure them, were roughly the same before 1914 as today. And taking all crises together, there is little evidence of an increase between then and now in the time to recovery.

This last finding is troubling in light of the predictions that flow from the resumption rule. Those who emphasize the tendency for central banks and governments, when forced to suspend gold convertibility, to restore it subsequently at the pre-crisis level predict a rapid end to capital flight, the early initiation of stabilizing capital flows, and early economic recovery. There

[67]See inter alia Eichengreen (1996).

is little evidence of this in the data on the duration of currency crises. Recovery from such crises was not faster before 1914. The explanation is straightforward. In emerging markets, where suspensions were not uncommon, the resumption rule was not practiced. And in the industrial world, countries clung tight to the gold standard rather than suspending and resuming subsequently. They only suspended in a national emergency such as a major war. Establishing their commitment to the peg in times of financial difficulty had non-negligible costs, which showed up as recessions. But that commitment at least prevented financial-sector problems from spilling over to the currency market and producing twin crises.

Thus, where "the pre-1914 system appears to have worked better" (quoting Delargy and Goodhart, 1999, p.11) was in limiting the tendency for banking problems to destabilize the currency market. Twin crises being a particularly virulent strain, the importance of this achievement should not be underestimated. A very hard currency peg, like that practiced in the countries at the core of the European gold standard in the late 19th century, could thus prevent financial problems arising elsewhere in the economy from also undermining the currency and then feeding back to the rest of the economy in destabilizing ways. Of course, even a very firm commitment to the peg was no guarantee against other financial problems, serious banking-sector problems in particular. This is an important lesson of history for emerging markets today.

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Table 1. Industrial composition of British capital exports to the ten major recipients, 1865-1914 (percentage of capital called in each country)

Broad Industrial group	*United States*	*Canada*	*Argentina*	*Australia*	*India*	*South Africa (1)*	*Brazil*	*Russia (2)*	*New Zealand*	*Mexico*	*All countries & colonies*
Government	5.8	33.9	22.4	65.8	45.8	50.9	45.9	50.3	64.3	19.7	36.3
Railways	61.6	40.3	57.5	0.0	40.5	1.9	31.6	24.8	2.0	36.6	31.7
Public Utilities	9.5	5.6	8.9	3.5	3.1	2.4	10.2	3.0	5.1	12.1	6.4
Financial	6.3	6.2	5.4	11.6	1.5	6.4	2.1	5.9	17.8	9.0	7.3
Raw Materials	5.5	3.7	0.5	13.4	5.9	33.7	2.9	12.0	6.4	15.5	10.0
Mines	4.6	3.5	0.5	12.9	3.2	33.5	1.3	3.9	6.1	8.9	7.6
Industrial & Misc.	10.8	10.1	4.6	3.5	2.0	4.1	6.5	3.9	2.7	5.8	7.2
mfg.	5.7	3.1	1.5	0.6	0.7	0.6	1.3	2.3	0.6	2.2	2.9
Shipping	0.5	0.2	0.8	1.2	1.1	0.4	0.9	0.2	1.6	1.2	1.3
Total Private (3)	94.2	66.1	77.6	34.2	54.2	49.1	54.1	49.7	35.7	80.3	63.7
Grand Total (4)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(1) Includes South Africa, Cape of Good Hope, Natal, Orange River Colony, Transvaal, and Orang Free State.
(2) Includes European and Asian Russia.
(3) All broad industrial groups with exception of Government.
(4) Details may not add to totals due to rounding.

Source: Stone (1999).

Table 2 Income per capita in creditor and debtor countries, selected years
(U.S. dollars)

	1913	1929	1980	1997
Major creditors[a]	4,779	6,025	10,976	28,474
Top 10 borrowers[b]	1,698	2,200	2,485	3,756
Low-income borrowers[c]			492	808
Memo item				
Share of low-income borrowers in total private flows to emerging markets			14	29

a. For 1913 and 1929, France, Germany, United Kingdom, and United States; for 1980 and 1997, the same countries plus Japan; average reflects GDP weights.
b. Top 10 recipients of net long-term private flows. Average weighted by GDP in 1913 and 1929, and by net long-term flows in 1980 and 1997.
c. Top 10 low-income recipients of long-term private flows. Average weighted by net long-term flows.
Source: World Bank (2000).

Table 3. Major recipients of British capital exports, 1865-1914

Rank		Percentage of Total Capital called	Cumulative Percentage	Amount (£000)
1	*United States*	20.5		836,371
2	*Canada*	10.1		412,283
3	*Argentina*	8.6		349,243
4	*Australia*	8.3		339,001
5	*India*	7.8	55.3	317,174
6	*South Africa*	6.4		262,233
7	*Brazil*	4.2		172,742
8	*Russia*	3.4		139,348
9	*New Zealand*	2.1		84,495
10	*Mexico*	2.0	73.4	81,532
11	*Japan*	1.9		78,285
12	*China*	1.8		73,747
13	*Egypt*	1.6		66,193
14	*Chile*	1.5		61,818
15	*France*	1.4	81.7	57,920
16	*Rhodesia*	1.1		46,232
17	*Turkey*	1.0		42,268
18	*Italy*	1.0		41,427
19	*Austria-Hungary*	1.0		39,954
20	*Peru*	0.9	86.8	37,173
21	*Spain*	0.8		33,912
22	*Uruguay*	0.8		30,678
23	*Cuba*	0.6		26,314
24	*Germany*	0.6		24,493
25	*Greece*	0.5	90.1	19,300
	Total Capital Called	100.0		4,079,254

Source: Stone (1999).

Table 4. Share of private-source debt flows, by recipient sector
(percent)

Sector	1865-1913[b]	1921-1931		1980	1997
		London	New York		
Public sector[a]	40	62	80	80	33
Private sector	60	38	20	20	67

a. Includes government-guaranteed borrowing where data are available.
b. Refers to British overseas investments only.
Source: World Bank (2000).

Table 5. Crisis Frequency

Year	Banking Crises	Currency Crises	Twin Crises	All Crises
1880-1913	2.30	1.23	1.38	4.90
1919-1939	4.84	4.30	4.03	13.17
1945-1971	0.00	6.85	0.19	7.04
1973-1997 (21 countries)	2.03	5.18	2.48	9.68
1973-1997 (56 countries)	2.29	7.48	2.38	12.15

Source: See text.

Table 6. Number of crises-- distribution by market

Market	Year	Banking Crises	Currency Crises	Twin Crises	All Crises
Industrial Countries	1880-1913	4	2	1	7
	1919-1939	11	13	12	36
	1945-1971	0	21	0	21
	1973-1997	9	29	6	44
Emerging Markets	1880-1913	11	6	8	25
	1919-1939	7	3	3	13
	1945-1971	0	16	1	17
	1973-1997	17	57	21	95

Source: See text.

Table 7. Output loss

	1880-1913 21 countries	1919-1939 21 countries	1945-1971 21 countries	1973-1997 21 countries	1973-1997 56 countries
Currency Crises					
All countries	8.31	14.21	5.25	3.81	5.91
	(8.35)	(19.05)	(7.96)	(6.34)	(7.53)
Industrial Countries	3.73	11.36	2.36	2.86	3.66
	(4.10)	(17.85)	(3.56)	(4.23)	(5.60)
Emerging Markets	9.84	26.53	9.03	8.54	7.00
	(9.12)	(22.98)	(10.40)	(12.38)	(8.23)
Banking Crises					
All countries	8.35	10.49	-	7.04	6.21
	(6.29)	(10.52)		(7.94)	(7.36)
Industrial Countries	11.58	11.51	-	7.92	7.04
	(6.01)	(11.20)		(7.94)	(7.89)
Emerging Markets	7.18	8.89	-	0.00	5.78
	(6.23)	(9.99)		-	(7.27)
Twin Crises					
All countries	14.50	15.84	1.65	15.67	18.61
	(21.54)	(14.66)		(10.05)	(12.53)
Industrial Countries	0.00	13.79	-	17.54	15.64
	-	(14.08)		(14.38)	(13.68)
Emerging Markets	16.31	24.03	1.65	14.10	19.46
	(22.29)	(16.96)		(5.48)	(12.41)
All Crises					
All countries	9.76	13.42	5.24	7.77	8.29
	(12.79)	(14.99)	(7.96)	(9.06)	(10.10)
Industrial Countries	7.68	12.29	2.39	6.69	6.25
	(6.78)	(14.65)	(3.65)	(8.97)	(8.49)
Emerging Markets	10.37	16.46	8.60	10.80	9.21
	(14.13)	(16.09)	(10.23)	(9.01)	(10.65)

Note: Standard deviation in parentheses.
Source: See text.

Table 8. Output loss, for crises with output losses only

	1880-1913 21 countries	1919-1939 21 countries	1945-1971 21 countries	1973-1997 21 countries	1973-1997 56 countries
Currency Crises					
All countries	11.09	25.26	7.19	5.08	7.56
	(7.80)	(19.14)	(8.56)	(6.78)	(7.90)
Industrial Countries	3.73	21.10	4.13	3.57	4.61
	(4.10)	(19.94)	(3.89)	(4.39)	(5.87)
Emerging Markets	14.77	39.79	9.63	17.08	8.84
	(5.43)	(0.19)	(10.48)	(12.97)	(8.47)
Banking Crises					
All countries	9.63	15.61	-	10.56	8.50
	(5.72)	(9.66)		(7.41)	(7.39)
Industrial Countries	11.58	15.82	-	10.56	10.56
	(6.01)	(10.05)		(7.41)	(7.41)
Emerging Markets	8.77	12.45	-	-	7.55
	(5.73)	(9.71)			(7.48)
Twin Crises					
All countries	18.64	16.59	1.65	15.67	18.61
	(22.99)	(14.23)		(10.05)	(12.53)
Industrial Countries	-	16.54	-	17.54	15.64
		(13.84)		(14.38)	(13.68)
Emerging Markets	18.64	24.03	1.65	14.10	19.46
	(22.99)	(16.96)		(5.48)	(12.41)
All Crises					
All countries	12.11	18.95	7.19	9.60	10.64
	(13.23)	(14.57)	(8.56)	(9.16)	(10.29)
Industrial Countries	8.96	17.93	4.35	7.98	7.72
	(6.44)	(14.55)	(4.00)	(9.27)	(8.82)
Emerging Markets	13.10	21.39	9.14	14.85	12.02
	(14.74)	(15.09)	(10.32)	(6.88)	(10.70)

Note: Standard deviation in parentheses.
Source: See text.

Table 9. Recovery time

	1880-1913 21 countries	1919-1939 21 countries	1945-1971 21 countries	1973-1997 21 countries	1973-1997 56 countries
Currency Crises					
All countries	2.63	1.94	1.84	1.87	2.07
	(1.85)	(1.65)	(1.17)	(1.29)	(1.63)
Industrial Countries	3.00	1.92	1.67	1.84	2.04
	(1.41)	(1.80)	(1.20)	(1.30)	(1.91)
Emerging Markets	2.50	2.00	2.06	2.00	2.09
	(2.07)	(1.00)	(1.12)	(1.41)	(1.49)
Banking Crises					
All countries	2.27	2.39	-	3.11	2.62
	(1.03)	(1.46)		(2.45)	(1.86)
Industrial Countries	3.00	2.55	-	3.38	3.11
	(1.15)	(1.75)		(2.45)	(2.42)
Emerging Markets	2.00	2.14	-	1.00	2.35
	(0.89)	(0.90)		-	(1.50)
Twin Crises					
All countries	2.22	2.73	1.00	3.73	3.78
	(2.22)	(1.87)		(2.83)	(2.93)
Industrial Countries	1.00	2.33	-	5.40	5.00
	-	(1.37)		(3.51)	(3.29)
Emerging Markets	2.38	4.33	1.00	2.33	3.43
	(2.33)	(3.06)		(1.03)	(2.80)
All Crises					
All countries	2.35	2.35	1.78	2.64	2.53
	(1.62)	(1.67)	(1.16)	(2.15)	(2.09)
Industrial Countries	2.71	2.26	1.60	2.84	2.71
	(1.25)	(1.65)	(1.19)	(2.40)	(2.43)
Emerging Markets	2.25	2.62	2.00	2.09	2.45
	(1.73)	(1.76)	(1.12)	(1.14)	(1.92)

Standard.deviation in parentheses.
Source: See text.

Appendix A: Crises Dates and Business Cycle Turning Points.

A.1880-1913

Date	Argentina	Australia	Belgium	Brazil	Canada	Chile	Denmark	Finland	France	Germany	Greece	Italy	Japan	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	UK	USA
1883																					
1884				T				P						T							BC
1885	CC	T					BC	T		P	CC							P		P	T
1886												P			T		P		P		
1887	T				T	CC	T		T	T				P		P					
1888				P		T			CC	P		T						T			
1889	P	P		BC,CC				P	P,BC				T				T			T	
1890	BC,CC			BC	P		P							T	P			P		BC	CC
1891	BC				CC	P						BC		P		BC,CC					P,CC
1892	T									T		P	P	T		T				P	T
1893		T,BC			CC		T	T	T	CC		BC					P	T	T		P,BC,CC
1894	P									P		CC			T		T				
1895										T				P			P				T
1896						T		P					T	T		P		P			
1897				BC	T									P,BC				BC	P		
1898	T			T,CC		BC,CC			P	P		T		T						T	
1899		P					P									T	T				
1900	P			BC		P		BC					P,CC							P	
1901				BC	P				T	T,BC		P	BC		P	P					P
1902	T			P			T						T				P				
1903		T						T						P				T	T		
1904					T				P			T	P,CC								T

1905						T		P		P				T	T	T		P			
1906					P		P		T								T		P		
1907						BC	BC		BC	CC		P,BC	T,BC				P	BC			P,BC
1908	CC			T	CC		BC		P			CC	CC		P	P					
1909					T				T				P	P					T		T
1910							T	T		T		T			T		T	T			
1911		P			P				P				T	T					P		P
1912	P			P		P	P			P								P		T	
1913									T							T		T			

Note: BC represents banking crises, CC represents currency crises, P represents business cycle peaks, T represents business cycle troughs. No entries are shown for Belgium and Greece because of missing data.

B.1919-1939

Date	Argentina	Australia	Belgium	Brazil	Canada	Chile	Denmark	Finland	France	Germany	Greece	Italy	Japan	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	UK	USA
1913									T							T		T			
1914							T						P						T		
1915					T	T		P						P	P	P	P	P			T
1916	T			T								P							P		
1917													T		T					P	
1918					P	P		T						T							P
1919		T		P								T					T	T			
1920	P				T											T,BC	BC	P			
1921	T			T	CC	T	T,BC,CC	P,BC,CC				BC	P,CC	P,BC,CC	P,BC					T	T
1922			T				CC		T						T,BC		P				
1923				BC	BC		P	T	CC					CC	BC	BC		T			
1924	P		P,CC	P	P	P		P	P			P			P	P	BC		T	P	P
1925			BC		T	BC		T						T		T	T,BC				
1926	T		BC	T		T	T		CC	T		T								T	T
1927		P	T						T				T,BC		T						
1928				P				P				P					P				
1929	P,CC				P,CC	P			P	P				P	P			P	P	P	P
1930	CC		P	CC			P		BC			BC	P			P					BC
1931	BC,CC	T	BC	CC	CC	CC	BC,CC	T,BC,CC	BC	BC,CC	T,BC,CC	BC	CC		BC,CC	BC,CC	BC,CC	BC,CC	BC	CC	BC
1932	T,CC	CC		T		T	CC		T,BC	T	CC	T	CC			BC	T	BC,C	T	T	BC

																		C			
1933		CC			T		T						T		T			T	BC		T,BC ,CC
1934	BC		T,BC	CC						CC				T			P				
1935	P		CC			P	P		P	P		BC,C C		CC					P		
1936		P		P	P		T		T,CC	T		CC				T			T,CC	P	P
1937			P	CC				P	CC		P				P		T				
1938	T		CC				P											P		T	
1939		T	BC		T			BC					P	BC	T				P,CC		T

Note: BC represents banking crises, CC represents currency crises, P represents business cycle peaks, T represents business cycle troughs. Missing entries for business cycle turning points during and after World War I reflect the absence of GDP data.

C. 1940-1971

Date	Argentina	Australia	Belgium	Brazil	Canada	Chile	Denmark	Finland	France	Germany	Greece	Italy	Japan	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	UK	USA
1940	P		T														P				
1941								T					T	P		P					
1942		P					T					P								P	
1943				T	P	T							P				T	T	T		P
1944	T					P		P					T	T			P				
1945		T										T				T					
1946			T												T					T	
1947				P	T		P				T							P	P	CC	
1948	P		P					T	CC			P		P							T
1949		P,CC	T,CC	T		T		CC	P	CC	P			CC	P,CC	P	T	CC		CC	
1950	CC			P	CC						CC	T							T	P	
1951			P		P					P			T		T						
1952	T			T													P				P
1953		T		P		P,CC				T	T	P		T		T	T	T		T	
1954		P	T		T				T				P				P				T
1955				T		T				P	P				P	P	T	P	P	P	P
1956	P		P	P				P	P					P			P				
1957					P	P	T		CC							T					
1958								T		T		T					CC	T		T	
1959	CC		T	CC							T		T		T				T		T
1960						T			T		P						T				CC

1961		T			T			P		P					P					P,CC	
1962	CC			T,CC	CC	P,CC					T	P		T			P				
1963	T			BC, CC						T			P			P	T		P	T	
1964		P				T			P	P		CC			T					CC	
1965			P	P,CC							P			P		T	P	P		P,CC	
1966	P						P									P	T			CC	
1967	CC	T	T		P	P	T	T	T	T		T		T	P		P,CC	T		T,CC	P
1968	T					CC	P		CC		T		T						T		
1969		P				T														P	
1970	CC				T											T				T	T
1971		T,CC	CC	T			CC	CC			CC		P	CC	CC	CC	T,CC	CC	CC		CC

Note: BC represents banking crises, CC represents currency crises, P represents business cycle peaks, T represents business cycle troughs.

Missing entries for business cycle turning points during and after World War II reflects the absence of GDP data.

D. 1972-1998

Date	Argentina	Australia	Austria	Bangladesh	Belgium	Brazil	Canada	Chile	China	Columbia	CostaRica	Denmark	Ecuador	Egypt	Finland	France	Germany	Greece	HongKong	Iceland	India	Indonesia	Ireland	Israel	Italy	Jamaica
1972	P				P			P								P	P	P							P	
1973							P					T														
1974		P										P			P											
1975	CC			P, CC		P		CC						CC						CC		CC				
1976		T, CC					T	T, BC		T	T	T, CC				T	T	T	T	T		T	T, CC		CC	CC
1977	T		T	T		T		CC	T					P	T		BC				P			BC, CC	T	
1978			P									P				P				CC		CC		T		CC
1979	P			P			P		P		P			CC			P	P					P			
1980	BC	P		CC		P		P	CC	P									P	P	T	P		P	P	
1981				T, CC			CC	BC			CC		BC	T, BC	P					CC						T, CC
1982	CC				CC			CC	T	BC		T	CC						BC		P					
1983	T	T, CC				T	T				T		T					T, CC	BC			CC			T	P.5
1984	CC							T, CC		T			P, CC						T	T, CC				T		T
1985	BC	CC		P	T						P		T, CC					CC								
1986							CC		CC			P	P		T, CC	T					T	CC	CC			
1987	P, CC		T	BC		P, CC			P		T, BC	BC										T	T	P		
1988								P		P	P		T CC				T		P	P						P, CC

1989	BC, CC	P,BC		T			P		CC			T		P,CC	P											
1990	T		P		P	BC, CC		T			T	P	P	BC		P		P			P		P	T	P, BC	T
1991	CC			P				P	T				T,CC		BC, CC		P		T		CC	P				CC
1992		T				T	T	T	CC	T		CC				CC						BC	CC		CC	
1993	P			T				P				T,CC	P		T,CC						T,CC	T	T			CC
1994						BC					P			T		T,BC		T	P	T	BC					P
1995	BC, CC	P			T	P		T	P	P							T								CC	
1996												P									P	P		P		
1997	T	T	T					P			T								T			BC, CC	P			
1998	P			P		CC				T									P	P		BC, CC			T	T

Note: BC represents banking crises, CC represents currency crises, P represents business cycle peaks, T represents business cycle troughs.

D. 1972-1998 Continued

Date	Japan	Korea	Malaysia	Mexico	Netherlands	NewZealand	Nigeria	Norway	Pakistan	Paraguay	Peru	Philippines	Portugal	Singapore	SouthAfrica	Spain	SriLanka	Sweden	Switzerland	Taiwan	Thailand	Turkey	UK	Uruguay	US	Venezuela	Zimbabwe
1972					P									P					P								
1973																							P		P		
1974																P											
1975			CC			P, CC	P	T	P	T	P, CC	P			P, CC			P			T			CC			CC
1976	T		T	CC	T							T	T, CC	T		CC	T			T			T, CC		T		
1977									T		CC				BC	BC	CC	T	T, CC			P, CC					
1978		P		T		CC					T		CC		T, CC								P			P	T
1979	CC				P	T	T		CC											P	P	CC		CC	P		
1980	P	CC				CC		P		P								P	P					P		BC	
1981		T		P, BC			P, CC		P		P	BC	P		P, CC							T		BC			P, BC
1982				CC								P, CC		BC	CC	CC		T				BC	T, CC	CC	T		CC
1983			P	CC	T			T			BC ,C C	CC	CC	P					T	BC	BC			CC			
1984						CC				CC	T				CC					T		CC		T	BC		CC
1985	T		BC	CC	P		T		T	T			T		BC	T			P						CC	T	
1986						P	CC	P, CC		CC		T, CC			CC		P				T	P		CC		CC	T, CC
1987			T		T	BC		BC			P			T	T				T							P	
1988				T		CC	CC		CC		CC				CC					P				P	P		CC
1989		P								P, CC		P		P	P		T, BC						P			T, CC	
1990	P		P	CC	P		P	T	CC		CC	CC				P		P	P			T		T			P,

																										CC
1991							BC,CC				T		P					BC				BC,CC					
1992	BC			P	CC	T					CC			T	CC	CC		CC				P	T, CC		T	P	CC
1993		T	T				CC		P, CC			T			T			T						P		BC	
1994				BC,CC	T		CC									T	P					BC,CC				CC	T
1995				CC		P			CC	BC	P		T	P	CC	CC				BC	P	T, CC				CC	
1996		P	P	T			T					P			P			P					P			T	
1997		BC,CC	C C						CC	T		CC					T		T		BC,CC	P		T			CC
1998		BC,CC	BC,CC	P	P	T		P	T		T	BC		CC				T			BC,CC			P	P		P

Note: BC represents banking crises, CC represents currency crises, P represents business cycle peaks, T represents business *cycle troughs.*